

WO 2005/084427

PCT/IB2005/000896

## SEQUENCE LISTING

&lt;110&gt; BIOPROTEIN TECHNOLOGIES

&lt;120&gt; PREPARATION OF RECOMBINANT ROTAVIRUS PROTEINS IN MILK OF TRANSGENIC NON-HUMAN MAMMALS

&lt;130&gt; D21684

&lt;150&gt; EP 04/290 589

&lt;151&gt; 2004-03-04

&lt;160&gt; 23

&lt;170&gt; PatentIn version 3.3

&lt;210&gt; 1

&lt;211&gt; 2643

&lt;212&gt; DNA

&lt;213&gt; rotavirus

&lt;220&gt;

&lt;223&gt; VP2 strain RF open reading frame

&lt;400&gt; 1

atggcgtaca	ggaaacgtgg	agcgccgt	gaggcgaata	taaataataa	tgaccgaatg	60
caagagaag	atgacgagaa	acaagatcaa	aacaatagaa	tgcagttgtc	tgataaaagta	120
ctttcaaaa	aagagaagt	cgtaccgac	agtcaagaag	aaattaaaat	tgtctgtatgaa	180
gtgaagaaaat	cgacgaaaga	agaatctaaa	caattgttgg	aagttttgaa	aacaaaagaa	240
gagcacccaa	aagagataca	atatgaaatt	ttgcaaaaaaa	cgataccaac	atttgaacca	300
aaagagtcaa	tattgaaaaaa	attggaggat	atcaaaccgg	aacaagcga	gaaggcagaot	360
aagctattta	aatatttga	accgagacag	ctaccaattt	atagagcga	tgtgtaaaaaa	420
gagttgcgt	acagatggta	tttggaaagctg	aagaaaagata	ctttaccaga	tggagatttat	480
gatgttagag	aatacttct	aaatttgtat	gatcagggttc	ttactgtaaat	gccagatttat	540
ttactattaa	aagatatggc	agttggaaaat	aaaatttgcg	gagatgcggg	taaaggttgtt	600
gattctgaa	cagcaatgt	ctgtgtatct	atatttcaag	atgaggaaaac	agaagggtgca	660
gtgagacgt	tcattgcgga	gatgagacag	cgcgtacaag	ctgacagaaa	cgttgtcaat	720
tacccatcaa	tattgcattcc	aataggattac	gcttttaatg	agtatttttt	gcaacacccaa	780
ttagttgaac	cattgataaa	tgatataata	ttcaatttaca	ttcctgaaaag	gataaggaaat	840
gacgttaact	atataactaa	tatggacaga	aatctgcct	caacagctag	atatataaga	900
cctaatttac	tacaagacag	actgaatttg	catgacaattt	ttgaatcctt	gtgggataca	960
ataacaactt	caaactatat	tctggcaaga	tgcgtgtac	cagattaaa	ggaaatttagtt	1020
tcaaccgaag	cgcaaattca	aaaaatgtca	caagacttgc	aacttagaagc	attaacaata	1080
cagtcagaaa	cgcagttttt	aacaggtata	aactcacaag	cagcaatga	ctgtttcaaa	1140
actctgtattt	cagcaatgtt	aatgtcaacga	accatgtcgc	ttgatgtcg	gactacaaaat	1200
tatattgtcat	taattttcagg	catgtgggt	ctaactgttag	tgccaaatgt	catgttcata	1260
agggaaatcat	tgggttgcgt	tcaactgtgt	atagtgaata	caataatata	tccagcgttc	1320
ggaatgtcaac	gaatgcattt	tagaaacgg	gaccacaaa	gaccatttca	gatagcagaa	1380
caacaaataac	aaaatttca	agtagcgaat	tggctgcatt	ttgtcaataa	caatcaattt	1440
agacaagtag	ttattttatgg	tttattttgtt	cagggtgtca	atgacaatata	tagaaatgg	1500
catgtcatta	atcaatttgc	atcaatttgc	atgcaactat	cacgacaaca	gttccaacaca	1560
atgcctgtt	attataagag	gtcaatccag	cgtggaaat	tatttgcata	aaataggctt	1620
ggtcaatttt	ttgatgttac	taggttata	gcttacaact	acgaaacact	aatggcatgt	1680
gttacgtgt	atatgtcaaca	tgttcagact	ttgacaacag	aaaaatttaca	gttaacttca	1740
gtcacatcg	tgtgtatgt	tattttttttt	gcaaccgtt	taccctggccc	gcagacattt	1800
tttactattt	ataatgttta	tgtttaatttt	cattcaattt	ataatggaaag	attaatgtat	1860
gcagtggca	taataactgg	agctaata	ctaaattttat	atcagaaaaaa	gatgaaggca	1920
atagtgttgg	atttttttttt	aaattttttttt	attttgcgt	tagcttaggt	tccagatgtat	1980
caaatgtata	gattaaggga	tagactacga	ctattgcag	tagaagttaa	acgattttttt	2040

attttaatt tgatactgat	gaacatggat	cagatagaac	gcgcatacaga	taaaattgcg	2100
caagggtta ttattgcgt	ccgcgatatg	caattggaaa	gagacgaaat	gtatggctac	2160
gtgaatatag ctagaaattt	agatgggttc	cagcaaataa	acctagaaga	attgatgaga	2220
acaggcgatt atgcacaat	aactaacatg	ctcttgaata	atcaaccagt	agcgctagtt	2280
ggagctcttc catttggta	agactcgta	gtcatatcg	tgatagcga	cgttgacgct	2340
acagttttgc cccaaatag	taaattacgg	aaagtgtata	ccttggaaacc	aatattgtat	2400
aaaataattt cagattcgaa	tgacttttac	ctagtggca	actatgattt	ggtgccact	2460
tcaaccacaa aagtataaa	gcaagttcca	cagcaattt	atttcagaaa	ttcgatgcat	2520
atgttaacat caaatcttac	tttcaactgtt	tactctgatc	tgcttgcatt	cgtatcggcc	2580
gatacagtag aacctataaa	tgcaagttca	tttgataata	tgcgcatcat	gaacgagttg	2640
taa					2643

<210> 2  
<211> 2643  
<212> DNA  
<213> Artificial sequence

<220>  
<223> VP2 strain RF open reading frame, modified sequence

<400> 2					
atggcgtaca ggaaacgtgg	agcgcgccgt	gaggcgaata	taaataataa	tgaccgaatg	60
caagagaaag atgacgagaa	acaagatcaa	aacaatagaa	tgcaaggatc	tgataaaatgt	120
ctttcaaaaga aagaggaaat	cgtaaccgac	agtcaagaag	aaattaaaaat	tgctgtatgaa	180
gtgaagaaat cgaccaaaga	agaatctaaa	caattgttg	aaagtttgc	aaacaaaaagaa	240
gaggcacaaa aagagataaa	atatgaaatt	ttgcaaaaaaaa	cgataccaac	atttgaacca	300
aaagagtcaa tattgaaaaaa	attggaggat	atcaaaccgg	aacaagcga	gaagcagact	360
aagcttattttaa gaatatttga	accgagacag	ctaccaattt	atagacgaa	tggtaaaaaaa	420
gagttgcgt	acagatggta	tttggaaatgt	aagaaagata	cttttaccaga	480
gatgttagag aataactttct	aaatttgcata	gatcaggatc	ttactgaaat	gccagattat	540
ttacttattaa aagatatggc	attttttttttt	aagaatttgc	gagatgcccgg	taaaggatgtt	600
gattctgaaa cagcaagtat	ctgtgtatgt	atatttcaag	atgaggaaac	agaagggtc	660
gtgagacgat tcatttgcgg	gatgagacag	cgcgatcaag	ctgacagaaaa	cgttgtcaat	720
tacccatcaa tattgcattcc	aatagattac	gtttttatgt	agtatttttt	gcaacacccaa	780
ttagttgaac catttgcataa	tgatataata	ttcaatttaca	ttccgttgc	aaaaggatgtt	840
gacgttaact atatactttaa	tatggacaga	aatctgcatt	caacagctag	atataataaga	900
cctaattttac tacaagacag	actgttatgtt	catgacattt	ttgatccat	gtgggatata	960
ataacaacctt caaacttat	tctggcaaga	tcggtagtac	cagattttaa	ggaatttagtt	1020
tcaaccgaag cgcaatttca	aaaaatgtca	caagacttgc	aacttgc	attaacaata	1080
cagtccggaaa cgcgtttttt	aacagggtata	aactcacaag	cagcaatgt	ctgtttcaaa	1140
actctgtatgtt	cagcaatgtt	accatgtcgc	ttgatccat	gactacaaat	1200
tatatgtcat taatttgcgg	catgtggta	ctaaactgt	tgccaaatgt	catgttcata	1260
agggaaatcat tgggttgcatt	tcaacttgcgt	atagtgtata	caataatata	tccagcggttc	1320
ggaatgcacat gaatgcattt	tagaaacgg	gaccacaaa	gaccatttca	gatagcagaa	1380
caacaaataac aaaattttca	agtagcgaat	tggctgcatt	ttgtcaataa	caatcaattt	1440
agacaagtag ttattttatgg	tttattttatgg	cagggtgt	atgacaaat	atgaaatgg	1500
catgtcatca atcaatttgcatt	atcaatttgcatt	atgcacactt	cacgacaaaca	gtttccaaaca	1560
atgcctgtt atataatgg	gtcaatccat	cgtggatata	tatttgcatt	aatataggctt	1620
ggtcaattttatggat	tttattttatggat	gttttacact	acgaaacact	aatggcatgt	1680
gttacgtatgttgcatt	atataatggat	tttacact	tttacact	tttacact	1740
gtcacatcgatgttgcatt	tttacact	tttacact	tttacact	tttacact	1800
tttacactt atataatggat	tttacact	tttacact	tttacact	tttacact	1860
gttacgtatgttgcatt	tttacact	tttacact	tttacact	tttacact	1920
atagtgtatgttgcatt	tttacact	tttacact	tttacact	tttacact	1980
caaatgtatgttgcatt	tttacact	tttacact	tttacact	tttacact	2040
atttttatgttgcatt	tttacact	tttacact	tttacact	tttacact	2100
caagggttta ttatttgcgt	tttacact	tttacact	tttacact	tttacact	2160
gtgaatataatgttgcatt	tttacact	tttacact	tttacact	tttacact	2220
acaggcgatgttgcatt	tttacact	tttacact	tttacact	tttacact	2280
ggagcttttc catttgcatt	tttacact	tttacact	tttacact	tttacact	2340

acagtttttg eccaaatagt taaattacgg aaagttgata ccttgaacc aatattgtat	24uu
aaaataaatt cagattcgaa tgactttac ctatggca actatgattt ggtgcctact	2460
tcaaccacaa aagtatataa gcaagttcca cagcaattt atttcagaaa ttcgatgcat	2520
atgttaacat caaatcttac ttcaactgtt tactctgatc tgcttcatt cgatccggcc	2580
gatacagtag aacctataaa tgcagttgca ttgataata tgcgcattcat gaacgagttg	2640
taa	2643

<210> 3  
<211> 2643  
<212> DNA  
<213> Artificial sequence

<220>  
<223> VP2 strain RF open reading frame, modified sequence.

<400> 3	
atggcgtaca ggaaacgtgg agcgcgcgt gaggcgaata taaataataa tgaccgaatg	60
caagagaag atgacgagaa acaagatcaa aacaatagaa tgcagttgc tgataaaagta	120
ctttcaaaa aagaggaagt cgttaaccgac agtcaagaag aaattaaaat tgctgtgaa	180
gtgaagaaat cgacgaaaga agaatctaaa caattgctt aagttttgaa aacaaaaagaa	240
gagcaccaaa aagagataca atatgaaatt ttgcaaaaaa cgataccaac atttgaacca	300
aaagagtcaa tattgaaaaa attggaggat atcaaaccgg aacaagcga gaagcagact	360
aagctattta gaatatttga accgagacag ctaccaattt atagacgaa ttgtgaaaaa	420
gagttgcgtt acagatggta ttgaaagctg aagaaagata ctttaccaga ttggagattat	480
gtatgttagag aataacttttcaatttttat gatcagggttc ttactgaaaat gccagattat	540
ctccctctgtt aagatattggc agttggaaaat aagaatttgcg gagatgccgg taaagttgtt	600
gattctgaaa cagcaagtat ctgtgtatc atatttcaag atgagggaaac agaagggtgca	660
gtgagacgt tcatttgcgg gatgagacag cgcgtacaaat ctgacagaaa cgttgtcaat	720
tacccatcaa tattgcatttca aatagattac gcttttaatg agtattttt gcaacaccaa	780
ttagttgaac cattgataaa tgatataata ttcaatttaca ttccctgaaag gataaggaat	840
gacgttaact atataacttaa tatggacaga aatctgcattt caacagctag atatataaga	900
cctaatttac tacaagacag actgaatttgc catgacaatt ttgaatcc ttgggatataca	960
ataacaacctt caaactatcat tctggcaaga tcggtagtac cagattaaa ggaatttagtt	1020
tcaaccgaaag cgcaatttca aaaaatgtca caagacttgc aacttagaagc attaacaata	1080
cagtccggaaa cgcgtttttt aacagggtt aacttcacaaatg cgcggatataa ctgtttcaaa	1140
actctgtatc cagcaatgtt aatgtcaacga accatgtcgc ttgatgtcgta gactacaaat	1200
tatatgtcat taatttcagg catgtggta ctaactgtatc tgccaaatga catgttcatat	1260
agggatcat ttgttgcatttcaacttgc atagtgaata caataatata tccagcggtt	1320
ggaatgcaac gaatgcatta tagaaacggg gaccacaaa gaccatttca gatagcagaa	1380
caacaaataac aaaattttca agtagcgaat ttgatgtcatttta caatcaattt	1440
agacaagtag ttattgtgg ttgttgcatttcatgtcataatgat taggtgcata atgacaatataatgga	1500
catgtcatat atcaatttgc ggaagcttta atgcaactat cacgacaaaca gtttccaaaca	1560
atgcctgtt attataagag gtcatttccat cgttgcattat tatttgcatttcaataggctt	1620
ggtcaattttat ttgatatttac tagttttat gcttacactt acgaaacactt aatggcatgt	1680
gttacgtatc atatgcatttca ttgttgcatttcaatggat gttacaatgcgaaaatttca gttaaacttca	1740
gtcacatgtt ttttgcatttataatgttgcatttcatgtcataatggat gcaacgttta taccggccc gcagacattt	1800
tttgcatttataatgttgcatttcatgtcataatggat gcaacgttta taccggccc gcagacattt	1860
gcatgttgcatttataatgttgcatttcatgtcataatggat gcaacgttta taccggccc gcagacattt	1920
atgttgcatttataatgttgcatttcatgtcataatggat gcaacgttta taccggccc gcagacattt	1980
caaatgtata gattaaggaa tagactacga ctatttgcatttataatgttgcatttcatgtcataatggat	2040
atttttaatttgcatttataatgttgcatttcatgtcataatggat gcaacgttta taccggccc gcagacattt	2100
caaggtgttta ttatttgcatttataatgttgcatttcatgtcataatggat gcaacgttta taccggccc gcagacattt	2160
gttacgtatc atatgcatttca ttgttgcatttcaatggat gttacaatgcgaaaatttca gttaaacttca	2220
acaggcgatttgcatttataatgttgcatttcatgtcataatggat gcaacgttta taccggccc gcagacattt	2280
ggagcttccat ttttgcatttataatgttgcatttcatgtcataatggat gcaacgttta taccggccc gcagacattt	2340
acagtttttttgcatttataatgttgcatttcatgtcataatggat gcaacgttta taccggccc gcagacattt	2400
aaaattttttgcatttataatgttgcatttcatgtcataatggat gcaacgttta taccggccc gcagacattt	2460
tcaaccacaa aagtatataa gcaagttcca cagcaatttgcatttataatgttgcatttcatgtcataatggat	2520
atgttacat caaatcttac ttcaacttgcatttataatgttgcatttcatgtcataatggat gcaacgttta taccggccc gcagacattt	2580
gatacagtag aacctataaa tgcagttgca ttgataataa tgcgcattcat gaacgagtttgcatttataatgttgcatttcatgtcataatggat	2640

taa

2043

<210> 4  
<211> 2643  
<212> DNA  
<213> Artificial sequence

<220>  
<223> VP2 strain RF open reading frame, modified sequence

<210> 5  
<211> 2643

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; VP2 strain RF open reading frame, modified sequence

&lt;400&gt; 5

atggcgtaca	ggaaacgtgg	agcgccgt	gaggcgaata	taaataataa	tgaccgaatg	60
caagagaaaag	atgacgagaa	acaagatcaa	aacaatagaa	tgcagtgtc	tgataaaagta	120
ctttcaaaga	aagaggaaat	cgtAACCGAC	agtcaagaag	aaattaaaat	tgcgtatgaa	180
gtgaagaaat	cgacgaaaga	agaatctaaa	caattgctt	aagtttggaa	aacaaaagaa	240
gagcaccaaa	aagagataca	atatgaaatt	ttgaaaaaaaa	cgataccac	atttgaacca	300
aaagagtcaa	tattgaaaaaa	atggaggat	atcaaaccgg	aacaagcga	gaagcagact	360
aagctatttta	aatatttga	accgagacag	ctaccaattt	atagagcga	tggtaaaaaa	420
gagttgcgt	acagatggta	ttgaaagctt	aagaaagata	ctttaccaga	tggagattat	480
gatgttagag	aatacttct	aaatttgtat	gatcagggtt	ttactgaaat	gccagattat	540
ctccctctgt	aaagatattggc	agttgaaaat	aagaattcga	gagatgcgg	taaagtgtt	600
gattctgaaa	cagcaatgt	ctgtgtatgt	atatttcaag	atggggaaac	agaaggtgca	660
gtgagacgt	tcattgcgg	gatgagacag	cgcgtaca	ctgacagaaa	cgttgtcaat	720
tacccatcaa	tattgcatcc	aatagattac	gcttttaatg	agtattttt	gcaacaccaa	780
ttagttgaac	cattgaataa	tgatataata	ttcaattaca	ttcctgaaag	gataaggaaat	840
gacgttaact	atatacttaa	tatggacaga	aatctgccc	caacagctag	atataataaga	900
cctaatttac	tacaagacag	actgaattt	catgacaatt	ttgaatcctt	gtgggataca	960
ataacaactt	caaactatat	tctggcaaga	tcggtagtac	cagattaaa	ggaatttagtt	1020
tcaaccgaag	cgcaattca	aaaaatgtca	caagacttgc	aactagaagc	attaacaata	1080
cagtcagaaa	cgcgttttt	aacaggta	aactcacaag	cagcaatga	ctgtttcaaa	1140
actctgattt	cagcaatgtt	aagtcaacga	accatgtcgc	ttgatttgcgt	gactacaaat	1200
tatatgtcat	taatttcagg	catgtgtt	ctaactgtag	tgccaaatga	catgttcata	1260
agggaatcat	tggtgtatg	tcaatgtgtt	atagtataa	tccagcgtt	c	1320
ggaatgcaac	gaatgcatta	tagaacgg	gaccacaaa	gaccattca	gatagcagaa	1380
caacaaatac	aaaatttca	agtagcgaat	tggctgcatt	ttgtcaataa	caatcaattt	1440
agacaagtag	ttattgtatgg	tgtattgaat	caggtgctga	atgacaatata	tagaaatgg	1500
catgtcatta	atcaatttgc	ggaagcttta	atgcaactat	cacgacaaca	gtttccaaca	1560
atgcctgtt	attataagag	gtcaatccag	cgttgcataat	tattgtatc	aaataggctt	1620
ggtcaattttag	ttgat	tttac	gtttacaact	acgaaacact	aatggcatgt	1680
gttacgtatg	atatgcaca	tgttgcact	ttgacaacag	aaaaatttca	gttacttca	1740
gtcacatgt	tgtgtatgt	tattggaaat	gcaacggta	tacccagccc	gcagacattt	1800
tttcaactt	ataatgttaa	tgtttaattt	cattcaaattt	ataatggaa	aaaaatgtat	1860
gcagtggcca	taataactgg	agtaataaga	ctaaatttat	atcagaaaaa	gatgaaggca	1920
atagttgaag	atttttaaa	aagattacat	attttcgat	tagctagat	tccagatgt	1980
caaatgtata	gattaaggga	tagactacga	ctattgccc	tagaagtaag	acgattggat	2040
atttttaaatt	tgataactgtat	gaacatggat	cagatagaac	gcgcatacga	taaaattgcg	2100
caagggttta	ttattgcgt	ccgcataat	caattggaaa	gagacaaat	gtatggctac	2160
gtgaatata	ctagaaattt	agatgggtt	cagcaataa	accttagaaga	attgtatgaga	2220
acaggcgtt	atgcacaaat	aactaacat	ctcttgcata	atcaaccagt	agcgctatgt	2280
ggagcttcc	cattgttac	agactcgtca	gtcatttccc	tcatgcata	cgttgcacgt	2340
acagtttttgc	ccccaaatgt	taaattacgg	aaagttgata	ccttggaaacc	aatattgtat	2400
aaaataaaat	cagattcgaa	tgacttttac	ctagttgc	actatgattt	gtgcctact	2460
tcaaccacaa	aaatataaa	gcaagttcca	cagcaattt	atttcagaaa	ttcgatgcata	2520
atgttaacat	caatcttac	tttactgtt	tactctgatc	tgcttgcatt	cgtatcggcc	2580
gatacagtag	aacctataaa	tgcagtgtca	tttgataata	tgcgcatcat	gaacgagttt	2640
taa						2643

&lt;210&gt; 6

&lt;211&gt; 2797

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; VP2 strain RF open reading frame, modified sequence

and with signal peptide

<400> 6

gcgcgccgt	cccaaggccc	aactccccga	accactcagg	gtccctgtgga	cagctcacct	60
agccgcatt	gctccaggct	cccgacgtc	cctgctctg	gcttttccc	tgctctgcct	120
gccctggct	caggaggctg	gcccgtat	ggcttacagg	aaacgtggag	cccgccgtga	180
ggctaattt	aataatag	acagaatgc	ggagaaaat	gacgaaaaac	aggatcagaa	240
caatagaatg	cagctgtctg	ataaaatgtct	ttcaaagaaa	gaggaagtgc	tcaccgacag	300
tcaggaagaa	attaaaatgg	ctgatgaagt	gaagaaatcc	acgaaagaag	aatctaaaca	360
gctccctgaa	gttctgaaaa	caaaaagaaga	gcaccagaaa	gagatccagt	atgaaattct	420
ccagaaaacg	attccaacat	ttgaaccaa	agagtcaatc	ctgaaaaaac	tcgaggatata	480
caaaccggaa	caggcgaaga	agcagactaa	gctgtttaga	atttttgaac	ccagacagct	540
cccaatctat	agagctaatt	gcaaaaaaga	gctgcgtaa	agatgttatt	gaaagctgaa	600
gaaagatact	ctgccagatg	gagattatga	tgttagagaa	tactttctga	atctctatga	660
tcaggttctt	actgaaatgc	cagattatct	cctcctgaaa	gatatggcag	ttgaaaataa	720
gaatagcaga	gatgcggaa	aagtttgtga	ttctgaacaa	gcaagtatct	gtgatgttat	780
ctttcaagat	gaggaacacg	aaggcgcagt	gagaagattc	atttgcgaga	tgagacagcg	840
cgtgcaggct	gacagaaaacg	ttgtcaatta	cccatcaattt	ctgcatccaa	tcgattacgc	900
tttaatgag	tattttctcc	agcaccagct	cgttgaacca	ctgaaatatg	atattatctt	960
caatttacatt	cctgaaagga	tttaggaatga	cgttaactat	atccttaata	tggacagaaaa	1020
tctgccatca	acagcttagat	atattagacc	taatctgtc	caggacagac	tgaatctcca	1080
tgacaatttt	gaatccctgt	gggatataaat	cacaacttca	aactatattc	tggcaagatc	1140
cgtcgccca	gatctcaagg	aactggtttc	aaccgaagct	cagattcaga	aatatgtcaca	1200
ggacccctcag	ctcgaagcac	tcacaattca	gtcagagacg	cagttctga	caggaatcaa	1260
c当地caggca	gcaaattgact	gttccaaaac	tctgatttgc	gcaatgtca	gtcagagaaac	1320
catgaggcctt	gatttgcgt	ctacaaatta	tatgtcactg	atttccaggca	tgtggctcct	1380
gactgtcgt	ccaaatgaca	tgttcattag	ggaatcattc	gttgcgtatgc	agctggctat	1440
cgtgataaca	attatctatc	cagcgttcgg	aatcgagaga	atgcagata	gaaacggaga	1500
cccacagcaga	ccatttcaga	tttgcagaaca	cgacatccag	aattttcagg	ttgctaattt	1560
gctgcatttt	gtcaacaaca	atcgttttag	acaggtcggt	attgtggcg	tgctcaatca	1620
ggtgctgaat	gacaatatta	gaaatggaca	tgtcattaaat	cagctgttgg	aagctctgtat	1680
gcagctctca	agacagcagt	tttcaacaat	gcctgttggat	tataagaggt	caatccagcg	1740
tggaaatttctc	ctccgttca	ataggcttgg	acagctgttt	gatctcactc	gtctgtcgc	1800
ttacaactac	gaaacactca	tggcatgtgt	tacgatgaat	atgcagatc	ttcagactct	1860
gacaacagaa	aaactgcacg	tcacttcgt	cacatccctc	tgtatgttta	ttggaaatgc	1920
aaccgttatac	cccagcccc	agacactgtt	tcacttattac	aatgttataat	ttaattttca	1980
ttcaaaattat	aatgaaagaa	ttaatgtatc	agtggccatt	atcgtcag	ctaatagact	2040
gaatctgtat	cagaaaaaga	tgaaggcaat	tgttgaat	tttctcaaaa	gactgcataat	2100
tttcgtatgc	gttagaggct	cagatgtatc	gatgtataga	ctcaggatata	gactcagact	2160
gctcccaggat	gaagtcagaa	gactggatat	ttttatcttc	atcctgtatgc	acatggatca	2220
gattgaacgc	gcatcagata	aaattggcca	gggcgttatt	attgttacc	gcgatatgc	2280
gctggaaaga	gacgaaatgt	atggctacgt	gaatatcgct	agaaaatctgg	atggattcca	2340
gcagattaaac	ctcgaagaaac	tcatgagaac	aggcgattat	gcacagatc	ctaacatgc	2400
cctgaataat	cagccagtgg	cgctgggtgg	agcttccca	tttggatcag	acagctcagt	2460
cattttccctc	atcgcttaacg	ttgacgttac	agtttttgc	cagattgtta	aactcaggaa	2520
agttgtatcc	ctgaaaccaa	tcctctataa	aattaattca	gatagcaatg	acttttacct	2580
cgttgcacac	tatgatttggg	tgcttacttc	aaccacaaaa	gtctataagc	aggttccaca	2640
gcagtttgc	ttcagaaattt	ccatgtatc	gtgcacatca	aatcttactt	tcactgttta	2700
ctcagatctg	cttgcattcg	tgagcgcgcg	tacagtgc	cctatcaatg	cagttgcatt	2760
tgataatatg	cgcacatcatga	acgagctgt	agcgccg			2797

<210> 7

<211> 783

<212> DNA

<213> Porcine rotavirus

<220>

<223> VP4 gene for capsid protein, partial cds

<400> 7

aatctttctg acgaaattca agatatttgg a ttagctaagt cgccaggatgt tactataaat ov  
 cctggccat tcgcacaaac aggttacgca ccagtttaatt ggggagcagg tgagactaat 120  
 gactccacaa ctgtcaagcc attatttagat ggtccggacc aaccaaccac ttcaacccca 180  
 ccaacaagct attggatatt acttgcgcca actgttagagg gcgttaattat ccaaggaaca 240  
 aacaatatacg atagatgggt ggctactata ctaattgaac caaacgtgca agcaactaat 300  
 agaatataca atccctttgg tcagaagaa actttatcg ttgaaaatac ataccagaca 360  
 caatggacgt tcattttgtt aagaaaaact acatagctg gaagttatac acagcatgg 420  
 ctattgtctt ctacacccaa ctcatacgct gtaatggat tcagcggtag aatatataca 480  
 tataatggaa ccacccaaa cgacgcaaca ggatactatt cagctactga ctatgacaca 540  
 gtaaatatga catcattttg tgacttttac attataccaa gaaatcaaga agaaaaatgt 600  
 actgagtata tcaatcacgg attacctccc atacaaaata cgagaatgt tggccagta 660  
 tccttatcggtt ctagagagat agtgcacaca agagctcaag ttaatgaaga tattttttt 720  
 tcaaaaactt cactttggaa agaaaatgcaaa tataacagag acataaccat aagattcaat 780  
 ttt 783

<210> 8  
 <211> 799  
 <212> DNA  
 <213> Human rotavirus

<220>  
 <223> P1B VP4 gene, partial cds

<400> 8  
 ccgattccata ttccatgtac ttccatgtat aaatagaaca gattggatca gagaaaaactc 60  
 aaaatgtac gataaaatcca ggtccatttg cacagactag atatgttca gttaaatggg 120  
 gacatgggg gattaatgtat tcaactatag tggaaaccat ttttagatggt ctttatcaac 180  
 ccactacgtt caaacccacctt aatgattttt ggctactttagt tagctcaaatac agatggag 240  
 tagtttatga aagtacaaat aatagtactt tttggacagc agttatcgct gttgaaccac 300  
 atgttagtca aacaataga caatataattt tattttgtt aaataaggcag ttaatataag 360  
 aaaataattc agataaaatgg aaatttttcg aaatgttcaa aggttagttagt cagggtgaat 420  
 tttcttaatagt acgaactcta acttctata atagactcgta aggaatgtca aaatatggtg 480  
 gaaaaatgtg gacatttcat ggtgaaacgc caagagccac tactgtatgg ttagatactg 540  
 cggattttaa taatataatca attataattt attcagatgtt ttatatttattt ccaagatctc 600  
 aagaatctaa atgtatgtatgat tatattataa atggtttgc accaatttcg aatacttaga 660  
 acgtatgtcc attatctcta tcatccagat ctatcaata taggagagca caagttatgt 720  
 aagatattac aattttaaaaa acttcattat ggaaggaaat gcaatgtat agagatattttt 780  
 taataagatt taaaattttgg 799

<210> 9  
 <211> 875  
 <212> DNA  
 <213> Human rotavirus

<220>  
 <223> P3 truncated VP4 protein gene, partial cds

<400> 9  
 tcgttcattt atagacagtt actatcaaacc tcatatgtta caaacatctc tgacgaaattt 60  
 aatggaaattt gaaactaaaaa agcaactaac gttactgtta atccaggccc attcgccacaa 120  
 acgggatatg cgcctgtcga ctggggacat ggtgaatttc ctgactctac attagtgcacaa 180  
 ccaacttttgc atggccata ccaacccact tcacttaattt tgccagtcga ttattttggat 240  
 ttaattgtcgc ctactagaga agggaaatgtt gctgaaggtt cgaataactac tgacagatgg 300  
 ttccgttgtt tactgttgc gccaaatgtt gaaaatacaca aaaggcaata cgttatttagat 360  
 gggcgaaatgtt tccaaattaca tgcctcaaaac gattcaagta cttcggtggaa attttatattt 420  
 ttccattaaat tgcaccccgaa cggaaacgtac actcaataactt caacccgttcc aacaccgcatt 480  
 aagttatgtcg cgtgaatgtt aagagataac agatgtatgtt ggtatcaagg aacgacacccg 540  
 aacgcatttgc agagatattttt cttgacaata aacaatgaca acagcaacgt ttcaagtgac 600  
 gctgaattcc atttgatacc gcaatcgac actgcattgt gtacacaata tataaacaat 660

ggtttaccac caattcagaa tacaaggaat attgtaccag taaaatattac atcttagacag	120
attaaagaca taagagctca gatgaatgaa gacatagtgatca tatcaaaaac ttgcgtatgg	780
aaagaatgc aataataatc agatataatc attagattta aatttgctaa ttcaataatc	840
aatcaggtt ggc taggtt aataatggcc gaaat	875

<210> 10  
<211> 1194  
<212> DNA  
<213> rotavirus

<220>  
<223> VP6 strain RF open reading frame

<400> 10	60
atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa	120
ggcacattat actccaatgt aagtgtatcta attcaacaat ttaatcaaatt gataattact	180
atgaatggaa atgaggatcca aactgggagga attggtaatc taccgatttag aaatttggaaat	240
tttgattttt gattactgg aacaactcta ctaaatttag atgctacta cgtcgaaacg	300
gcccgcataa caattgatta tttgttagat ttgttagata atgtatgtat ggacgaaatg	360
gttagagaat cacaagaaa tggaaattgca ccacaatcatg attcaattt aaagttatca	420
ggcattaaat taaaagaat aaattttgac aattcatcatg aatacataga gaactggaaat	480
ttgcaaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat ttcccttat	540
tcagcttcata tcacgttcaa cagatcacaa cccgctcatg ataacttgat gggtaacgatg	600
tggctcaatg cgggatcaga aattcaggatc gctggattcg actactcatg tgcaataaaac	660
gcccgcata atacgcacaa atttgaggcat attgtacatc ttcaaggggt gttgactaca	720
gctacaataa ctcttttacc agatgcagaa agattttagt ttccaaagagt gattacttca	780
gctgacggag cgactacatg gtacttcaat ccagtgttcc tttagacaaa taacgttcaa	840
atagagttt tactaaacgg gcagataata aatacttacc aagcaagatt tggaaacgatc	900
atagcttagaa attttgatac aatttagattt tcatttcactg tgatgagacc accaaatatg	960
acaccaggg tagcggcggtt atttccaaat ggcgcggccat ttgaacatca cgcaacagta	1020
ggactcacgc tttagaatttga atctgcagtt tgtaatcatg tacttgccga cgcaagcgaa	1080
acaatgttagt caaatgttac atctgtttaga caagaatacg cgataccagt tggaccaggat	1140
tttccaccag gtatgaattt gactgattt atcactaact attcaccatc tagagaggat	1194
aacttgcagc gtgtatattac agtggcttcc attagaagca tgcttgtcaa atga	

<210> 11  
<211> 1194  
<212> DNA  
<213> Artificial sequence

<220>  
<223> VP6 strain RF open reading frame, modified sequence

<400> 11	60
atggatgtcc tgtactcctt gtcaaaaact cttaaagatg ctagagacaa aattgtcgaa	120
ggcacattat actccaatgt cagtgtatcta attcaacaat ttaatcaaatt gataattact	180
atgaatggaa atgaggatcca aactgggagga attggtaatc taccgatttag aaatttggaaat	240
tttgattttt gattactgg aacaactcta ctaaatttag atgctacta cgtcgaaacg	300
gcccgcataa caattgatta tttgttagat ttgttagata atgtatgtat ggacgaaatg	360
gttagagaat cacaagaaa tggaaattgca ccacaatcatg attcaattt aaagttatca	420
ggcattaaat taaaagaat aaattttgac aattcatcatg aatacataga gaactggaaat	480
ttgcaaaaata gaagacaaag aacgggtttt acatttcata aaccaaacat ttcccttat	540
tcagcttcata tcacgttcaa cagatcacag cccgctcatg ataacttgat gggtaacgatg	600
tggctcaatg cgggatcaga aattcaggatc gctggattcg actactcatg tgcaataaaac	660
gcccgcata atacgcacaa atttgaggcat attgtacatc ttcaaggggt gttgactaca	720
gctacaataa ctcttttacc agatgcagaa agattttagt ttccaaagagt gattacttca	780
gctgacggag cgactacatg gtacttcaat ccagtgttcc tttagacaaa taacgttcaa	840
atagagttt tactaaacgg gcagataata aatacttacc aagcaagatt tggaaacgatc	900
atagcttagaa attttgatac aatttagattt tcatttcactg tgatgagacc accaaatatg	

acaccagcgg tagcggcggtt atttccaaat	gcccgcacat ttgaacatca	cgcaacagta	960
ggactcacgc tttagaattga	aactgcagtt	tgtgaatcatg tacttgccga	1020
acaatgttag	caaatgtac	caagaatacg cgataccagt	1080
tttccaccag	gtatgattt	gactgatttg atcactaact	1140
aacttgcagc	gtgtatttac	atggcgttcc attagaagca	1194

&lt;210&gt; 12

&lt;211&gt; 1194

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; VP6 strain RF open reading frame, modified sequence

&lt;400&gt; 12

atggatgtcc tggatccctt gtcaaaaact	ctttaaagatg ctagagacaa	aattgtcgaa	60
ggcacattat actccatgt aagtgtatca	attcaacaat ttaatcaaat	gataattact	120
atgaatggaa atgaggatcca aactggagga	attggtaatc taccgattag	aaatttggaaat	180
tttgatTTTg gattacttgg aacaactcta	ctaaatttag atgctaacta	cgtcgaaaacg	240
gcccccaata caattgatta tttttagat	ttttagata atgtatgtat	ggacgaaatg	300
gttagagaat cacaagaaaa tggattgca	ccacaatcg attcacttat	aaagttatca	360
ggcattaaat taaaagaat aaatTTTgac	cagtcatcg aatacataga	gaactggaaat	420
ttgcaaaaata gaagacaaag aacgggtttt	acatttcata aaccaacat	tttcccttat	480
tcagcttcat tcacgttcaa cagatcacaa	ccggctcatg ataacttgc	gggtacgatg	540
tggctcaatg cgggatcaga aattcaggtc	gctggatcgc actactcatg	tgcataaaac	600
gcggccagct atacgcaaca atttgagcat	attgtacgc ttcaagggt	gttgactaca	660
gctacaataaa ctcttttacc agatgcagaa	agatttatg ttccaagagt	gattacttca	720
gctgacggag cgactacatg gtacttcaat	ccagtgttcc tttagacaaa	taacgttggaa	780
atagagtttc tactaaacgg gcagataata	aatacttacc aagcaagatt	tggAACGATC	840
atagctagaa attttgatca aatttagattt	tcattttcagt tgatgagacc	acccaaatatg	900
acaccagcgg tagcggcggtt atttccaaat	gcccgcacat ttgaacatca	cgcaacagta	960
ggactcacgc tttagaattga	aactgcagtt	tgtgaatcatg tacttgccga	1020
acaatgttag	caaatgtac	caagaatacg cgataccagt	1080
tttccaccag	gtatgattt	gactgatttg atcactaact	1140
aacttgcagc	gtgtatttac	atggcgttcc attagaagca	1194

&lt;210&gt; 13

&lt;211&gt; 1194

&lt;212&gt; DNA

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; VP6 strain RF open reading frame, modified sequence

&lt;400&gt; 13

atggatgtcc tggatccctt gtcaaaaact	ctttaaagatg ctagagacaa	aattgtcgaa	60
ggcacattat actccatgt aagtgtatca	attcaacaat ttaatcaaat	gataattact	120
atgaatggaa atgaggatcca aactggagga	attggtaatc taccgattag	aaatttggaaat	180
tttgatTTTg gattacttgg aacaactcta	ctaaatttag atgctaacta	cgtcgaaaacg	240
gcccccaata caattgatta tttttagat	ttttagata atgtatgtat	ggacgaaatg	300
gttagagaat cacaagaaaa tggattgca	ccacaatcg attcacttat	aaagttatca	360
ggcattaaat taaaagaat aaatTTTgac	aattcatcg aatacataga	gaactggaaat	420
ttgcaaaaata gaagacaaag aacgggtttt	acatttcata aaccaacat	tttcccttat	480
tcagcttcat tcacgttcaa cagatcacaa	ccggctcatg ataacttgc	gggtacgatg	540
tggctcaatg cgggatcaga aattcaggtc	gctggatcgc actactcatg	tgcataaaac	600
gcggccagct atacgcaaca atttgagcat	attgtacgc ttcaagggt	gttgactaca	660
gctacaataaa ctcttttacc agatgcagaa	agatttatg ttccaagagt	gattacttca	720
gctgacggag cgactacatg gtacttcaat	ccagtgttcc tttagacaaa	taacgttggaa	780
atagagtttc tactaaacgg gcagataata	aatacttacc aagcaagatt	tggAACGATC	840

atagcttagaa	attttgatac	aatttagattt	tcatttcagt	tgatgagacc	accaaatacg	590
acaccagcgg	tagccgcgtt	atttccaaat	gcgcaaggccat	ttgaacatca	cgcaacagta	960
ggactcacgc	ttagaattga	atctgcagtt	tgtgaatcag	tacttgcgcg	cgcaaggcga	1020
acaatgttag	cacaagtgac	atctgttaga	caagaatacg	cgataccagt	tggaccagg	1080
tttccaccag	gtatgaattt	gactgattt	atcactaact	attcaccatc	tagagaggat	1140
aacttgccgc	gtgtatttac	agtggcttcc	attagaagca	tgcttgtcaa	atga	1194

<210> 14  
<211> 1194  
<212> DNA  
<213> Artificial sequence

<220>  
<223> VP6 strain RF open reading frame, modified sequence

<400> 14	atggatgtcc	tgtactcctt	gtcaaaaact	cttaaagatg	ctagagacaa	aattgtcgaa
	ggcacattat	actcccaagt	cagtgtatcta	attcaacaat	ttaatcaaat	gataattact
	atgaatgaa	atgagttcca	aactggagga	attggtaatc	taccgattag	aaattggaat
	tttgattttg	gattacttgg	acaactcta	ctaaattag	atgtaacta	cgtcgaaacg
	gccccgaaata	caattgatta	tttttagat	ttttagata	atgtatgtat	ggacgaaatg
	gttagagaat	cacaaagaaa	ttttagatca	ccacaatcag	attcacttat	aaagttatca
	ggcattaaat	ttaaaagaat	aaattttgac	cagtcatcag	aatacataga	gaactggaat
	ttgcaaaaata	gaagacaaaag	aacgggtttt	acatttcata	aaccaaacat	tttcccttat
	tcagcttcat	tcacggtgaa	cagatcacag	cccgctcatg	ataacctgtat	gggtacgatg
	tggctcaatg	cgggatcaga	aattcaggtc	gctggattcg	actactcatg	tgcaataaac
	gcccgcagcta	atacgcaaca	atttgagcat	attgtacagc	ttcgaagggt	gttgcactaca
	gctacaataaa	ctcttttacc	agatgcagaa	agatttagtt	ttccaagagt	gattacttca
	gctgacggag	cgactacatg	gtacttcaat	ccagtgttcc	ttagacaaaa	taacgttga
	atagagttc	tactaaacgg	gcagataata	aataacttacc	aagaagatt	tggAACGATC
	atagctagaa	attttgtatc	atttagattt	tcatttcagt	tgatgagacc	accaaataatg
	acaccacgg	tagggcgtt	atttccaaat	gcccgcacat	ttgaacatca	cgcaacagta
	ggactcaacg	tttagatttg	atctgcattt	tgtgaatcag	tacttgcgaa	cgcaagcgaa
	acaatgttag	cacaagtgcac	atctgttaga	caagaatacg	cgataccagt	tggaccagg
	tttccacccag	gtatgcgtt	gactgattt	atcactaact	attcaccatc	tagagaggat
	aacttgcacg	gtgtattttac	agtggcttcc	attagaagca	tgcttgtcaa	atga

<210> 15  
<211> 1194  
<212> DNA  
<213> Artificial sequence

<220>  
<223> VP6 strain RF open reading frame, modified sequence

```

<400> 15
atggatgtcc tgtactcctt gtcaaaaact cttaaagatg cttagagacaa aattgtcgaa 60
ggcacattat actcccaagt cagtgatcta attcaacaat ttaatcaaat gataattact 120
atgaatggaa atgagttcca aactggagga attggatac taccgattag aaattggaaat 180
tttgatttg gattacttgg aacaactcta ctaaatttag atgctaacta cgtcggaaaa 240
gccccgcaata caattgttata tttttagat tttagata atgtatgtat ggacgaaatg 300
gttagagaat cacaaggaaa tggaaatgca ccacaatcg attcaacttat aaagttatca 360
ggcattaaat ttaaaaagaat aaattttgac cagtcatcg aatacataga gaactggaaat 420
ttgcaaaaata gaagacaaaag aacgggtttt acatttcata aaccaaacat ttcccttat 480
tcagcttcat tcacgttga cagatcacaa ccggctcatg ataacttgat gggtacgatg 540
tggctcaatg cgggatcaga aattcaggtc gctggattcg actactcatg tgcaataaac 600
gcgcggacta atacgcaaca atttgagcat attgtacagc ttcaaggggt gttgactaca 660
gttacaataa ctcttttacc agatgcagaa agatttagtt ttcaagagt gattacttca 720

```

gctgacggag	cgactacatg	gtacttcaat	ccagtgattc	ttagacccaa	taacgttgaa	780
atagagttc	tactaaacgg	gcagataata	aatacttacc	aagaagatt	tggAACGATC	840
atagctagaa	atTTGatac	aatttagattt	tcatttcagt	tgatgagacc	accAAatatg	900
acaccAGCGG	tagGGCGTT	atTTCCAAT	gCGCAGCCAT	ttGAACATCA	cGCAACAGTA	960
ggactcacgc	ttagaattga	atctgcagtt	tgtGAATCAG	tacttgcgcg	cGCAAGCGAA	1020
acaatgctag	cacaagtgac	atctgttaga	caagaatacg	cgataccagt	tggACCAGT	1080
tttccaccag	gtatgcagtg	gactgatttg	atcactaact	attcaccatc	tagAGGAGGAT	1140
aacttgcagc	gtgtatttac	agtggcttcc	attagaagca	tgcttgtcaa	atga	1194

<210> 16  
<211> 1348  
<212> DNA  
<213> Artificial sequence

<220>  
<223> VP6 strain RF open reading frame, modified sequence,  
with signal peptide

<210> 17  
<211> 1061  
<212> DNA  
<213> Human rotavirus

<220>  
<223> G9 strain 97CM113 outer capsid protein (VP7)

```

<400> 17
ggctttaaaa gagagaattt ccgtctggct agcggttatt tccttttaat gtatggtatt 60
gaatatacca caattctaac ctttctgata tcaatagtt tattgaacta tatataaaaa 120
tcactaacta gtgcgatgca cttcataatt tatagattt tttacttat tgttatgtca 180
tcaccctttg taaaacaca aaattatgga attaatttac cgatcaactgg ctccatggat 240
acacatatg caaatttcac acagcaagaa acattttga cttaacgcgt atgcttataat 300
tatcctcacag aagcgtcaac tcaaattgga gatacggaa ggaaggatac tctgtcccaa 360
ttattcttga ctaaagggtg gccaaactgga tcagtctatt ttaaagaata caccgatatc 420

```

gcttcattct	caattgatcc	gcaactttat	tgtgattata	atgttgtact	gatgaagtat	480
gattcaacgt	tagagctaga	tatgtctgaa	ttagctgtt	taattctaaa	tgaatgggta	540
tgtAACCCAA	tggatataac	attatattat	tatcagcaaa	cagatgaagc	gaataaaatgg	600
atatcgatgg	gacagtcttg	taccataaaa	gtatgtccat	tgaatacgc	gacttttagga	660
atagggttga	ttaccacaaa	tacagcgaca	tttgaagagg	tggctacaag	tggaaaatata	720
gtaataacccg	atgttgttga	tggtgtgaaac	cataaaacttg	atgtgactac	aaataacctgt	780
acaatttagga	attgttaaaaa	gttggggacca	agagaaaaatg	tagcgattat	acaagtcgggt	840
ggctcagatg	tgttagatag	tacagcgat	ccaaactactg	caccacaaac	tgaacgtatg	900
atgcgatgaa	attgttaaaaa	atgggtggcaa	gttttctata	cagtagttaga	ttatattaat	960
cagattgtgc	aagttagtgc	caaaagatca	cggtcattaa	attcagcagc	tttttactat	1020
agggtttgat	atatctttaga	ttagaattgt	atgatgtgac	c		1061

<210> 18

<211> 1062

<212> DNA

<213> Human rotavirus

<220>

<223> G9 strain 02-22 capsid protein VP7 gene

<400> 18

ggctttaaaa	gagagaattt	ccgtctggct	agcggtttgc	tccctttaa	gtatggcc	30
gaatatacca	caattctaac	ctttctgata	tcaatagt	tattgaacta	tatataaaa	120
tcactaacta	gtgcgatgg	cttataatt	tatagattt	ttttaactt	tgttattgca	180
tcatctttt	ttaaacaca	aaattatgg	attaattac	cgatcactgg	ctccatggat	240
acagcatatg	caaattcatac	acagcaagaa	acattttga	cttcaacgc	atgcattata	300
tatccctacag	aagcatcaac	tcaatttgg	gatacggaa	ggaaggat	tctgtcccaa	360
ttattcttga	ctaaagggt	gc当地actgg	tcagtttatt	ttaaagaata	cactgat	420
gcttcattct	caattgtatcc	acaactttt	tgtgattata	atgttgact	gatgaagtat	480
gattcaacgt	tagagctaga	tatgtctgaa	ttagctgatt	taattctaaa	tgaatggta	540
tgttaacc	tggatataac	attatattat	tatcagcaaa	caagatgg	gaataatgg	600
atatcgatgg	gacagtctt	taccataaaa	gtatgtccat	tgaatacgc	gacttttag	660
atagggttga	ttaccacaaa	tacagcgaca	tttgaagagg	tgctcataag	tggaaaattt	720
gtaataacc	atgttgttga	tttgtgtgac	cataaaactt	atgtgactac	aaataccgt	780
caaatttagga	atgttagagaa	tttaggacca	agagaaaat	tagcgattat	acaagtccgt	840
ggctcagat	tgttagat	tacagcgat	ccaaactact	caccacaaa	tgaacgtat	900
atgcgat	atgttagagaa	atgttgtgca	tttttctata	cgttagt	tttatattat	960
cagattgtc	aaattatgtc	caaaagatca	cggtcattaa	attcagc	tttttactat	1020
aqqgtttagt	atatctttag	tttagaattt	atgtatgtc	ca		1062

<210> 19

<211> 1062

<212> DNA

<213> Human rotavirus

<220>

<223> G3 strain MaCH09004 outer capsid protein (VP) gene,  
complete cds

<400> 19

tgtatccata	tggatattac	tttgtattat	tatcaacaaa	ctgatgggc	aaaaaaaayy	600
atttcaatgg	gatcatcttg	tactataaaag	gtatgtccac	taaatacgca	aacatttagga	660
atggggtgc	taacaactga	tacaaacacg	tttgaagaag	ttgcaacagc	tgaaaaatta	720
gtgattactg	acgttgtaga	ttggagtcaat	cataaaattga	acgtgacaac	aaacacttgt	780
acgattcgaa	attgtttagaa	atttaggacca	aggggaaaacg	tagcagttat	acaggtaggt	840
ggccccagatg	tgctgtacat	aacagctgtat	ccaacgcacaa	tgccacaaaac	agaaaagaatg	900
atgcgatgtt	attgtttagaa	atgggtggcaa	gtgttttata	caatagtgtga	ctacgtgtat	960
caaattgtgc	aagcaatgtc	caaaagatcg	agatcattaa	attctgtgc	attttactac	1020
agagtataga	tatacgcttag	attagaatttgc	tatgtatgtga	cc		1062

<210> 20  
<211> 981  
<212> DNA  
<213> Human rotavirus  
  
<220>  
<223> G12 VP7 gene for capsid protein, complete cds

<210> 21  
<211> 1062  
<212> DNA  
<213> Human rotavirus

<220>  
<223> G3 strain MaCH09404 outer capsid protein (VP7) gene,  
complete cds

<400> 21	ggctttaaaa gagagaattt ccgtctggct agcggttagc tccttttaat gtatggtatt	60
gaatatacca cagtttaaac ctttttgata tcagttatat tggtaatta cgtactcaaa	120	
tccttaacta gaataatgga ctttatttt tacagatttc tttaattat agttatatta	180	
tcaccactcc ttaatgcaca aaattatgga ataaatcttc cgattactgg ctcaatggac	240	
acccatata cgaactcaac gcgagaggaa gtattctaa cttcgacttt atgtttgtat	300	
tacccaactg aagcagcaac agaaataaat gataattcat ggaaggatac atttctcag	360	
ctatttttaa tcaaaggatg gccaacagga tctattttt ttaaagatta tactgatatt	420	
gcctcgcccc cagtcgatcc acaactgtat tgtgattata atttggatt aatgaaatat	480	
gacgctcacac tgcaactggc catgtccgaa ctacgcgatt tggtaacttta tgagtggta	540	
tgtatccca tggatattac tttgtattat tatcaacaaa ctgatgggg aaataaaatgg	600	
atttcaatgg gatcatctt tactataaag gtatgtccac taaatacgc aacatttagga	660	

attgggtgtc taacaactga tacaaacacg tttgaagaag ttgcaacacgc tgaaaaaalll 120  
gtgattactg acgtttaga tggagtcaat cataaattga acgtgacaac aaacacttgt 780  
acgattagaa attgtaagaa attaggacca agggaaaacg tagcagttat acaggttaggt 840  
ggcccgatg tgcttgacat aacagctgat ccaacgcacaa tgccacaaac agaaagaatg 900  
atgcgagtga attggaagaa atggggcaa gtgtttata caatagttga ctacgtgaat 960  
caaattgtgc aagcaatgtc caaaagatcg agatcattaa attctgctgc attttactac 1020  
a<sup>g</sup>agtataga tatagcttag attagaattt tatgatgtga cc 1062

&lt;210&gt; 22

&lt;211&gt; 7

&lt;212&gt; PRT

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; HIV epitope

&lt;400&gt; 22

Arg Thr Pro Lys Ile Gln Val  
1 5

&lt;210&gt; 23

&lt;211&gt; 6

&lt;212&gt; PRT

&lt;213&gt; Artificial sequence

&lt;220&gt;

&lt;223&gt; HIV epitope

&lt;400&gt; 23

Glu Leu Asp Lys Trp Ala  
1 5

**This Page is Inserted by IFW Indexing and Scanning  
Operations and is not part of the Official Record**

## **BEST AVAILABLE IMAGES**

Defective images within this document are accurate representations of the original documents submitted by the applicant.

Defects in the images include but are not limited to the items checked:

- BLACK BORDERS**
- IMAGE CUT OFF AT TOP, BOTTOM OR SIDES**
- FADED TEXT OR DRAWING**
- BLURRED OR ILLEGIBLE TEXT OR DRAWING**
- SKEWED/SLANTED IMAGES**
- COLOR OR BLACK AND WHITE PHOTOGRAPHS**
- GRAY SCALE DOCUMENTS**
- LINES OR MARKS ON ORIGINAL DOCUMENT**
- REFERENCE(S) OR EXHIBIT(S) SUBMITTED ARE POOR QUALITY**
- OTHER:** \_\_\_\_\_

**IMAGES ARE BEST AVAILABLE COPY.**

**As rescanning these documents will not correct the image problems checked, please do not report these problems to the IFW Image Problem Mailbox.**